

Analysis of Engineering frameworks

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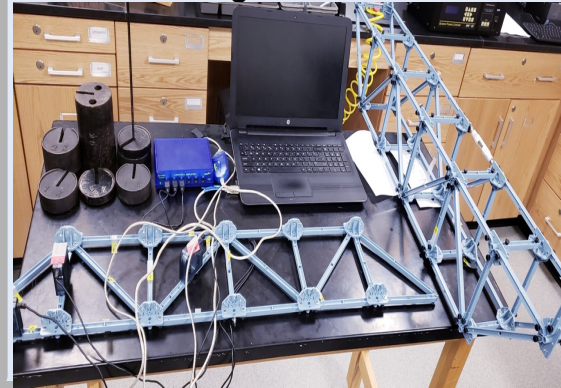
Purpose/Question

Analyze the how elements of Engineering frameworks react right before collapsing.
This analysis of engineering frameworks involve the use of 2D and 3D modules using different kind of configurations.

Methods & Findings

The goal is to find the internal forces in the frames and observe the behavior of the bridge before collapse. For that purpose, different load and specific material were used. The theoretical part involved the use of method of joints, which is sum of all forces along X and Y equal to zero

Images/Charts



Implications

The expectation was to compare our data with the truss model with ultimate load. The finding was that the reaction forces will stay the same, and the major changes in internal forces will take place around the most stress members.

Images/Charts



Result

2D Data Table

Members	W= 1.5*g	W= 2.5*g	W= 3.5*g
1	F= 10.85	F= 17.77	F= 24.60
2	F= -2.92	F= -4.45	F= -5.60
3	F= 1.07	F= 1.53	F= 1.89
4	F= -4.88	F= -6.31	F= -8.71
5	F= -10.45	F= -17.19	F= -24.11
6	F= 7.47	F= 12.85	F= 17.72
7	F= -0.32	F= -0.47	F= -0.75
8	F= -17.80	F= -29.40	F= -40.02
9	F= 10.10	F= 16.70	F= 23.55
10	F= 15.73	F= 25.89	F= 35.50
11	F= -13.65	F= -23.19	F= -32.31

References

Cuny Research Scholars Program
Experimental approach to engineering mechanics
Evaluation and presentation:
Guidelines for poster preparation
Retrieved from: <http://johnjay.jjay.cuny.edu/files/academics/Editing.pdf> . October 5, 2017.